



## Milwaukee SurvNet

### Clinical Recognition and Management of Suspected Bioterrorism Events

(Adapted from the New York City Department of Health)

**Healthcare providers in Milwaukee County should be alert to the illness patterns and diagnostic clues that might signal an unusual infectious disease outbreak due to the intentional release of a biological agent and should report these concerns immediately to SurvNet at the Milwaukee Health Department (414-286-3624).**

Unlike a chemical or nuclear release, the covert release of a biological agent will not have an immediate impact because of the delay between exposure and illness onset. Consequently, the first indication of a biologic attack may only be identified when ill patients present to physicians or other healthcare providers for clinical care.

Look for the following clinical and epidemiological clues that may be suggestive of a possible bioterrorist event:

- Any unusual increase or clustering in patients presenting with clinical symptoms that suggest an infectious disease outbreak (*e.g.,  $\geq 2$  patients presenting with an unexplained febrile illness associated with sepsis, pneumonia, adult respiratory distress, mediastinitis, or rash; or a botulism-like syndrome with flaccid muscle paralysis especially if occurring in otherwise healthy individuals*).
- Any case of a suspected or confirmed communicable disease that is not endemic in Milwaukee (*e.g., anthrax, plague, tularemia, smallpox, or viral hemorrhagic fever*) or that occurs in a person without a travel history to an endemic area.
- Any unusual age distributions for common diseases (*e.g., a cluster of severe chickenpox-like illness among adult patients who all report a previous history of varicella infection*).
- Any unusual temporal and/or geographic clustering of illness (*e.g., persons who attended the same public event or religious gathering*).
- Any sudden increase in the following non-specific syndromes, especially if illness is occurring in previously healthy individuals and if there is an obvious common site of exposure:
  - Respiratory illness with fever
  - Gastrointestinal illness
  - Encephalitis or meningitis
  - Neuromuscular illness (*e.g., botulism*)
  - Fever with rash
  - Bleeding disorders
- Simultaneous disease outbreaks in human and animal populations.

Some infections caused by potential bioterrorist agents present with distinctive signs that can provide valuable diagnostic clues. *In previously healthy persons presenting with a febrile illness*, the following signs and symptoms are highly suggestive of infection with certain biological agents:

**Diagnostic sign****Disease**

- |   |                      |
|---|----------------------|
| ○ Widened mediastinum with fever and sepsis:          | Inhalational anthrax |
| ○ Pneumonia with hemoptysis:                          | Pneumonic plague     |
| ○ Vesicular/pustular rash starting on face and hands, |                      |

with all lesions at the same stage of development: Smallpox

Similarly, laboratorians should be alert to microbiologic clues that may indicate the presence of a potential bioterrorist agent. For example, blood cultures growing Gram-positive rods, especially if found in multiple cultures and/or the clinical syndrome is suggestive of anthrax, should be evaluated for *Bacillus anthracis*. Characteristics of *B. anthracis* include: Gram-positive rods, often in chains; non-motile; non-hemolytic on sheep blood agar; positive for India Ink capsule stain if obtained from blood; and a characteristic consistency of "beaten egg whites" when colonies are picked with an inoculating loop. Cultures containing *Brucella*, *Yersinia* and *Francisella* will have extremely small Gram-negative rods. *Brucella* and *Francisella* are typically faint-staining and grow poorly on sheep blood agar. Notify the Milwaukee Public Health Laboratory (414-286-3909) regarding all suspect cultures immediately for further testing if appropriate. When possible laboratorians should consult with the clinician to rule out any obvious endemic etiologies.

Most pathogens that could be used as a biologic weapon (*e.g., anthrax, plague, and smallpox*) would present initially as a non-specific influenza-like illness. Therefore, an unusual pattern of respiratory or influenza-like illness (*e.g., occurring out of season or in large numbers of previously healthy patients presenting simultaneously*) should prompt clinicians to alert the SurvNet. These disease patterns might represent an early start to the influenza season or the introduction of a new pandemic strain of influenza, or could be the initial warning of a bioterrorist event.

For more detailed clinical information on specific pathogens that might be used in a bioterrorist event, please consult the following references or Websites:

American College of Physicians: <http://www.acponline.org/bioterr/>

American Society of Microbiology:  
<http://www.asmtusa.org/pcsrc/bioprep.htm>

Association for Infection Control Practitioners: <http://www.apic.org/bioterror/>

CDC Bioterrorism Preparedness and Response: <http://www.bt.cdc.gov>.

Infectious Disease Society of America: <http://www.idsociety.org>

Johns Hopkins Center for Civilian Biodefense: <http://www.hopkins-biodefense.org>

\*\*\*\* The Johns Hopkins Center for Civilian Biodefense has written consensus guidelines on the medical and public health management of the primary bioterrorist agents, including smallpox, anthrax, botulism, plague and tularemia. These guidelines were published in the Journal of the American Medical Association and archived copies are available at <http://jama.ama-assn.org>.

US Army Medical Research Institute of Infectious Diseases:  
<http://www.usamriid.army.mil/education/bluebook.html>